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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,967	10/19/2005	Hans Lichtenstein	275558US0PCT	9968
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
BERNSHTEYN, MICHAEL				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
07/11/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/553,967

Applicant(s)

LICHTENSTEIN ET AL.

Examiner

MICHAEL M. BERNSTEYN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/86)
Paper No(s)/Mail Date 06/30/08, 11/17/05, 10/19/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 2, 5-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchide et al. (JP 02-194058) in view of Lichtenstein et al. (U. S. Patent 5,621,028).

With regard to the imitations of claims 1 and 8-10, Tsuchide discloses a molding for illuminated advertising comprising a poly(meth)acrylate matrix, scattering particles comprising silicone resin fine particles having average diameter of 1-6 μm and from 0.3-2 parts by weight of inorganic transparent particles having particle diameter of 1-7 μm , which is within the claimed ranges (page 2, claims 1-3, page 5, lines 19-22, page 6, lines 2-4).

With regard to the imitations of claims 1 and 8-10, Tsuchide discloses that it is reasonable that the amount of silicone resin fine particles is limited to about 5 parts by weight per 100 parts by weight of the resins, but Tsuchide does not disclose the claimed range of the plastic scattering particles and the usage of crosslinked polystyrene.

With regard to the imitations of claims 1 and 8-10, Lichtenstein discloses a resin. The polymer particles which comprise, in particular, crosslinked polystyrene (col. 2, lines 60-61), preferably are spherical in shape, i.e. the light-scattering particles are employed principally as microbeads, and their particle diameters are 1-20 μm . They are generally present in the amount of 0.05-10 wt. %, preferably 0.1-5 wt. %, particularly preferably 0.2-3 wt. %, based on the total weight of all components of the polymethacrylate resin, which is within the claimed range (col. 3, lines 3-10).

Both references are analogous art because they are from the same field of endeavor concerning molding, light-scattering polymethacrylate resins.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate crosslinked polystyrene as plastic scattering particles having claimed particles size in the adjusted amount as taught by Lichtenstein in Tsuchide's a poly(meth)acrylate molding light-diffusing resin because it is sought to devise a polymethacrylate composition containing polystyrene as a clouding agent, which composition has high heat- and weather resistance, and which retains such resistance when subjected to, e.g., thermal forming operations to form light-scattering PMMA molded articles, and under conditions of use of such articles in illumination engineering, particularly outdoors (US'028, col. 2, lines 15-22), and thus to arrive at the subject matter of instant claim 1 and dependent claims 8-10.

With regard to values of a gloss R_{85} , yellowness, halved-intensity angle, impact resistance and modulus of elasticity instantly claimed in claims 2, 5, 14, 15, 17 and 18, the combined teaching of Tsuchide and Lichtenstein is silent about it. However, in view of substantially identical ingredients, their amounts and particle sizes between Tsuchide, Lichtenstein and instant claims, it is the examiner position that Tsuchide and Lichtenstein's light-diffusing molding polymethacrylic resin inherently possesses all these properties. Since the USPTO does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. *In re Fitzgerald* 619 F 2d 67, 70, 205 USPQ 594, 596 (CCPA 1980).

Therefore, it would have been obvious to one of ordinary skill in the art to make the light-diffusing molding polymethacrylic resin having the claimed properties using the claimed process because it appears that the reference generically embrace the claimed

subject matter and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed subject matter and the subject matter of the prior art examples give rise to unexpected products.

With regard to the imitations of claim 6, Tsuchide discloses that the particle diameter of inorganic transparent particles is preferable 2-5 μm , which is clearly within the claimed range (page 5, line 20).

With regard to the imitations of claim 7, Tsuchide discloses that the inorganic particles comprise barium sulfate (page 5, line 3, page 9, Table 1).

With regard to the imitations of claim 12, Lichtenstein discloses that the polymethacrylate compositions and molded articles produced therefrom may also be colored, wherewith suitable colorants and dyestuff pigments may be added for this purpose (col. 2, lines 37-40).

With regard to the imitations of claims 13 and 16, Tsuchide discloses that the light-diffusing resins have haze of at least 90% and up to 94%, and the total light transmittance of about 65-75%, and they have beautiful gloss showing, high light diffusivity, and high light transmittance can be obtained without being transparent (page 5, lines 1-10).

With regard to the imitations of claim 19, Lichtenstein discloses that the weathering resistance to DIN 53 387 of the polymethacrylate resin is at least 5000 hours, which is within the claimed range (col. 7, lines 27-36).

With regard to the imitations of claim 20, Tsuchide discloses a process for production of moldings comprising polymerizing the acrylic resin in casting mold, wherein the acrylic resin comprises methyl(meth) acrylate, inorganic scattering particles and spherical silicone resin particles (Examples 1-11, pages 7-8, page 9, Table 1).

With regard to the imitations of claim 21, Tsuchide does not disclose that the viscosity of the acrylic resin is in the specific range.

With regard to the imitations of claim 21, Lichtenstein discloses that the methyl methacrylate prepolymer has viscosity of 1000 cP, determined with a rotational viscosimeter according to DIN 53 019, which is within the claimed range (col. 6, lines 35-38).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust viscosity of methacrylate resin amount as taught by Lichtenstein in Tsuchide's a poly(meth)acrylate molding light-diffusing resin with reasonable expectation of success for better reaction with crosslinked polystyrene (US'028, col. 6, lines 35-51), and thus to arrive at the subject matter of claim 21.

2. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchide et al. (JP 02-194058) and Lichtenstein et al. (U. S. Patent 5,621,028) as applied to claims 1, 2, 5-10 and 12-21 above and further in view of Maas et al. (U. S. Patent Application publication 2003/0207082 A1).

The disclosure of Tsuchide and Lichtenstein's references resided in § 1 is incorporated herein by reference.

With regard to the imitations of claims 3 and 4, the combined teaching of Tsuchide and Lichtenstein does not disclose that at least a portion of the surface has an average surface roughness R_a of at most $0.3\text{ }\mu\text{m}$.

Maas discloses that a light diffusing substrate is characterized as having excellent surface roughness. In one embodiment, the center line average roughness R_a is characterized as being $0.1\text{ }\mu\text{m}$ or less, a ten-point average roughness R_z of $1\text{ }\mu\text{m}$ or less, and a maximum height surface roughness R_{max} of $1\text{ }\mu\text{m}$ or less. In another embodiment, the surface roughness is characterized as having a ten-point average roughness R_z of $0.5\text{ }\mu\text{m}$ or less, and a maximum height surface roughness of R_{max} of $0.5\text{ }\mu\text{m}$ or less. In yet another embodiment, the surface roughness is characterized as having a ten-point average roughness R_z of $0.3\text{ }\mu\text{m}$ or less, which is within the claimed range (page 4, [0037]).

All these references are analogous art because they are from the same field of endeavor concerning molding, light-scattering polymethacrylate resins.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the average surface roughness in the claimed range as taught by Maas Lichtenstein in Tsuchide and Lichtenstein's poly(meth)acrylate molding light-diffusing resin because the light-diffusing resin having such excellent values of the average surface roughness can be used in a number of multi-wall sheet applications and optical applications in general, and in particular, in the form of a film for use as a diffusing film for flat panel display applications (US'028, page 4, [0039]), and thus to arrive at the subject matter of instant claims 3 and 4.

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchide et al. (JP 02-194058) and Lichtenstein et al. (U. S. Patent 5,621,028) as applied to claims 1, 2, 5-10 and 12-21 above and further in view of Sakuraba (JP 11-172019).

The disclosure of Tsuchide and Lichtenstein's references resided in § 1 is incorporated herein by reference.

With regard to the imitations of claim 11, the combined teaching of Tsuchide and Lichtenstein does not disclose that the proportion of inorganic scattering particles in the molding is greater than or equal to the proportion of scattering particles comprising plastic.

With regard to the imitations of claim 11, Sakuraba discloses a resin composition comprising (A) 100 pts. wt. (meth)acrylic resin, (B) 0.1-0.9 pt. wt. spherical crosslinked polystyrene particles, (C) 01.-10 pt. wt. at least one member selected from spherical organic particles having a mean diameter of 1-20 μm , and (D) 01.-10 pt. wt. at least one member selected from inorganic light diffusing agents having a mean particle diameter of below 1 μm or of 8 μm and more. Component (D) is exemplified by calcium carbonate, barium sulfate, titanium oxide or talc (abstract).

All these references are analogous art because they are from the same field of endeavor concerning molding, light-scattering polymethacrylate resins.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the amounts of inorganic and plastic particles in such way that the proportion of inorganic scattering particles, such as barium

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sulfate, in the molding is greater than or equal to the proportion of scattering particles comprising plastic, such as crosslinked polystyrene, as taught by Sakuraba in Tsuchide and Lichtenstein's a poly(meth)acrylate molding light-diffusing resin in order to obtain a resin sheet having excellent light diffusivity, light transmittance, light resistance and surface feeling (JP'019, abstract), and thus to arrive at the subject matter of instant claim 11.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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